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Technology Center 2600

Applicant: Pan et al.

Application No.: 10/077,509

REMARKS

In the office action, claim 1 was provisionally rejected under obviousness-type double patenting in view of claim 19 of co-pending application no. 09/814,346 and claim 1 of co-pending U.S. Patent Application No. 10/077,527. If the Examiner otherwise deems the claims allowable, Applicants are willing to submit a Terminal Disclaimer to overcome that rejection.

Claims 1-16 were rejected under 35 U.S.C. §103(a) as being unpatentable over Benvenuto et al. and U.S. Patent No. 5,719,899 (Thielecke et al.). With respect to the comments made in the "Response to Arguments" of the Final Action, the following is provided. None of the references disclose using multiple chip rate sampling in the context of the present invention. Benvenuto, in particular Equation 1 on page 619, is cited as disclosing such information. However, Equation 1 is simply a user specific signature sequence, which in a CDMA communication system is a code sequence having chips. As stated in the paragraph following Equation 1, the code consists of Q complex elements termed chips. The chip duration is then provided by Equation 2. Benvenuto discloses a code having multiple chips, but not multiple chip rate sampling, which samples multiple times in a chip period. Accordingly, Benvenuto, in particular Equation 1, does not disclose multiple chip rate sampling at all. With respect to the channel response matrix, the term channel response matrix and channel response is well known in the art. The channel response is an estimation of the distortion that the transmitted signal experiences

while passing through the wireless interface to the receiver. The spreading code is part of the initially transmitted signal and is not a part of the channel response. The use of the channel response matrix compared to using a combination of the channel response and the channelization codes as in Benvenuto, has advantages. As a result of the similar channel response experience by the different users, a separate combination of the channel response and the spreading codes does not have to be determined for each user which dramatically decreases the dimensions of the matrices and the number of computations required to perform the data detection processing of the present invention. Accordingly, the user of the channel response provides advantages over the approach of Benvenuto, without even considering the multiple chip rate sampling.

Furthermore, assuming, in *arguendo*, that the A matrix and the channel response matrix can be equated to each other. Benvenuto does not even use a circulant approximation of that matrix. The A matrix of Benvenuto is partitioned into many square Toeplitz matrixes as described on page 620. A circulant approximation of these matrices, and not the A matrix, is used which further distinguishes Benvenuto from the present invention.

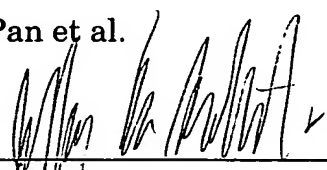
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Reconsideration and entry of this amendment is respectfully requested.

Respectfully submitted,

Pan et al.

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